

SEQUENCE LISTING

<110> Sebbel, Peter  
Dunant, Nicolas  
Bachmann, Martin  
Tissot, Alain  
Lechner, Franziska

<120> Molecular Antigen Array

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<223> Primer

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 Thr Val Ala Gln Ala  
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Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys  
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ctgaccgaca ccctgcaggc ggaaaccgac caggtggaag acgaaaaatc cgcgctgcaa 180  
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His Gly Gly Cys  
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Ala Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Cys Gly Gly Leu Thr  
15 20 25  
gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc gcg 147  
Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala  
30 35 40  
ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg gag 195  
Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu  
45 50 55  
ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240  
Phe Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala  
60 65 70  
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                   20                  25                  30  
 Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala  
           35                  40                  45  
 Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His  
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 Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp  
           10                  15                  20  
 gaa aaa tcc gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa 150  
 Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys  
       25                  30                  35  
 gaa aag ctg gag ttc atc ctg gcg gca cac ggt ggt tgc taagctt 196  
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Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala  
35 40 45  
His Gly Gly Cys  
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<212> PRT

<213> Artificial Sequence

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<223> Fos fusion  
construct

<400> 25

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Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn  
20 25 30  
Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly  
35 40 45  
Gly Cys Gly Gly Ser Ala Ala Ala  
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<210> 26

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<212> PRT

<213> Homo sapiens

<400> 26

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15

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Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala  
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<220>  
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gggtgtctga ccgacaccct gcaggcggaa accgaccagg tggaagacga aaaatccgcg 180  
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gcacacgggtg gttgctaagc tt 262

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Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile  
20 25 30  
Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala  
35 40 45  
His Gly Gly Cys  
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 Leu Leu Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu  
 15 20 25 30

acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc 144  
 Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser  
 35 40 45

gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg 192  
 Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu  
 50 55 60

gag ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240  
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gggtgtggga ggcctaagct t 261

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 20 25 30

Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu  
 35 40 45

Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe  
 50 55 60

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 ggt ccg aac gaa ctc ggc cgc ttt aaa cac acc gac gca tgc tgt cgc 96  
 Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
 20 25 30  
 acc cag gac atg tgt ccg gac gtc atg tct gct ggt gaa tct aaa cac 144  
 Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
 35 40 45  
 ggg tta act aac acc gct tct cac acg cgt ctc agc tgc gac tgc gac 192  
 Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
 50 55 60  
 gac aaa ttc tac gac tgc ctt aag aac tcc gcc gat acc atc tct tct 240  
 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
 65 70 75 80  
 tac ttc gtt ggt aaa atg tat ttc aac ctg atc gat acc aaa tgt tac 288  
 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
 85 90 95  
 aaa ctg gaa cac ccg gta acc ggc tgc ggc gaa cgt acc gaa ggt cgc 336  
 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
 100 105 110  
 tgc ctg cac tac acc gtt gac aaa tct aaa ccg aaa gtt tac cag tgg 384  
 Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
 115 120 125  
 ttc gac ctg cgc aaa tac 402  
 Phe Asp Leu Arg Lys Tyr  
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<210> 44  
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Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
20 25 30  
Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
35 40 45  
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
50 55 60  
Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
65 70 75 80  
Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
85 90 95  
Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
100 105 110  
Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
115 120 125  
Phe Asp Leu Arg Lys Tyr  
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<400> 57  
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<400> 58  
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sequence

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1 5 10 15  
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20 25 30  
Val Ala Gln Leu Lys Gln Lys Val Met Asn His Val Gly Cys  
35 40 45

<210> 60  
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acid sequence

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Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu  
1 5 10 15  
Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu  
20 25 30  
Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys  
35 40 45

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33

<210> 62  
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<400> 62  
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<400> 66  
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<210> 67  
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<210> 68  
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<400> 68  
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<223> Primer

<400> 73

gttggttgcg gagccgcggg tagcgaccta gtagtcagtt atgtc

45

<210> 74

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 74

cgcggtcccaa gcttctacgg aagcggtgat aggatagg

38

<210> 75

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 75

ctagccgcgg gttgcggtgg tcggatcgcc cgg

33

<210> 76

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 76

cgcggtcccaa gcttttagca accaacgtgg ttcatgac

38

<210> 77

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 77

ccggaattca tggccacact tttaaggagc

30

<210> 78

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

09848616-050401

<223> Primer

<400> 78

cgcggtcccaa gcttttagca accaacgtgg ttcattgac

38

<210> 79

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 79

ccggaattca tggacattga cccttataaa g

31

<210> 80

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 80

cctagagcca cctttgccac catcttctaa attagtaccc acccaggtag c

51

<210> 81

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 81

gaagatggtg gcaaaggtgg ctctagggac ctagtagtca gttatgtc

48

<210> 82

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 82

cgcggtcccaa gcttctaaac aacagtagtc tccggaag

38

<210> 83

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 83

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gccgaattcc tagcagctag caccgaattt atctaa 36

<210> 84  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 84  
ggttaagtcg acatgagagt gaaggagaaa tat 33

<210> 85  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 85  
taaccgaatt caggaggtaa aaagatatgg 30

<210> 86  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 86  
gaagtaaagc ttttaaccac cgcaaccacc agaag 35

<210> 87  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 87  
tcgaatgggc cctcatcttc gtgtgctagt cag 33

<210> 88  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Fos fusion  
construct

<400> 88  
Glu Phe Arg Arg

00049616 050401

<210> 89  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

<400> 89  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile  
 65 70 75 80  
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
 85 90 95  
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
 145 150 155 160  
 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
 165 170 175  
 Gln Ser Arg Gly Ser Gln Cys  
 180

<210> 90  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

<400> 90  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr

0904050-0904050

65		70		75		80
Ser Arg Asp Leu Val	Val Ser Tyr Val	Asn Thr Asn Met Gly Leu Lys				
	85	90			95	
Phe Arg Gln Leu Leu Trp Phe His	Ile Ser Cys Leu Thr Phe Gly Arg					
	100	105		110		
Glu Thr Val Ile Glu Tyr Leu Val	Ser Phe Gly Val Trp Ile Arg Thr					
	115	120		125		
Pro Pro Ala Tyr Arg Pro Thr Asn Ala Pro	Ile Leu Ser Thr Leu Pro					
	130	135		140		
Glu Thr Cys Val Ile Arg Arg Arg Gly Arg	Ser Pro Arg Arg Arg Thr					
	145	150		155		160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser	Pro Arg Arg Arg Arg Ser					
	165	170		175		
Gln Ser Arg Gly Ser Gln Cys						
	180					

<210> 91  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 91
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr
85 90 95
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp
100 105 110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
165 170 175

09848616 050401

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 92

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 92

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 93

<211> 183

<212> PRT

<213> Hepatitis B virus

0948616.050404



<400> 93

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Thr Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 94

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 94

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp

09041616 "050401

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<210> 95
<211> 212
<212> PRT
<213> Hepatitis B virus

<400> 95
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
  1             5             10             15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile
      20             25             30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
      35             40             45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
      50             55             60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
  65             70             75             80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
      85             90             95
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp
      100            105            110
Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln
      115            120            125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
      130            135            140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
  145            150            155            160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr
      165            170            175

```

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 96

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 96

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro Gln  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 97

<211> 212

<212> PRT

<213> Hepatitis B virus

00048616-050401

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ala

[illegible]

1

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<400> 99
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1          5          10          15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
          20          25          30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
          35          40          45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
          50          55          60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala
          65          70          75          80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
          85          90          95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
          100          105          110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
          115          120          125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
          130          135          140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
          145          150          155          160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
          165          170          175

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Gln Ser Arg Glu Ser Gln Cys  
180

<210> 100  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 100  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg His Ala Ile Leu Cys Trp Gly Asp Leu Arg Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 101  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 101  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile

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	20		25		30										
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu
		35					40					45			
Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser
	50					55					60				
Ala	Leu	Phe	Arg	Asp	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His
65					70					75					80
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr
			85						90					95	
Leu	Ala	Thr	Trp	Val	Gly	Ala	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
			100					105					110		
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln
		115					120					125			
Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val
	130					135					140				
Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Gln	Ala
145					150					155					160
Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Cys
				165					170					175	
Val	Val	Arg	Arg	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro
			180					185					190		
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg
		195					200					205			
Glu	Ser	Gln	Cys												
	210														

<210> 102  
 <211> 183  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> synthetic  
         human Hepatitis B construct

<400> 102  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
   1                  5                  10                  15  
  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
           20                  25                  30  
  
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
       35                  40                  45  
  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
       50                  55                  60  
  
 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
       65                  70                  75                  80

004951 050401 004950 004950

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 103  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 103  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Ser  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

09343616 050401



Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 104  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 104  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 105  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 105  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys

09843616 050401

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<210> 106
<211> 183
<212> PRT
<213> Hepatitis B virus

<400> 106
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu
  1           5           10           15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp
      20           25           30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys
      35           40           45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
      50           55           60

Leu Met Thr Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala
      65           70           75           80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
      85           90           95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg
      100          105          110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
      115          120          125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
      130          135          140

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Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 107

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 107

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 108

<211> 212

<212> PRT

<213> Hepatitis B virus

0048516 050401

<400> 108

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 109

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 109

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Thr Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His

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65		70		75		80
His Thr Ala Leu Arg	Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr					
	85		90		95	
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp						
	100		105		110	
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln						
	115		120		125	
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						
	130		135		140	
Ile Glu Tyr Leu Val Ala Phe Gly Val Trp Ile Arg Thr Pro Pro Ala						
	145		150		155	160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr						
	165		170		175	
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro						
	180		185		190	
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg						
	195		200		205	
Glu Ser Gln Cys						
	210					
<210> 110						
<211> 212						
<212> PRT						
<213> Hepatitis B virus						
<400> 110						
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr						
	1		5		10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile						
	20		25		30	
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu						
	35		40		45	
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser						
	50		55		60	
Ala Leu Tyr Arg Glu Ala Phe Glu Cys Ser Glu His Cys Ser Pro His						
	65		70		75	80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr						
	85		90		95	
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp						
	100		105		110	
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln						
	115		120		125	
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						
	130		135		140	

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Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 111  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<220>  
 <221> UNSURE  
 <222> (28)..(28)  
 <223> May be any amino acid.

<400> 111  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Xaa Asp Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Ile Thr  
 85 90 95  
 Leu Ser Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr Ser Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190

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Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Thr Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 112  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 112  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 113  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 113  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr

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1	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile	20	25	30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser	50	55	60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr	85	90	95
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp	100	105	110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln	115	120	125
Leu Leu Trp Phe His Ile Cys Cys Leu Thr Phe Gly Arg Glu Thr Val	130	135	140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala	145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr	165	170	175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro	180	185	190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg	195	200	205
Glu Ser Gln Cys	210		

<210> 114  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 114
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

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His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Pro Gln Cys  
210

<210> 115  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 115  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Ser Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

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Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 116  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 116  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Leu Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 117

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 T07050 9T984860

<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 117

Met	Gln	Leu	Phe	His	Leu	Cys	Leu	Ile	Ile	Ser	Cys	Ser	Cys	Pro	Thr
1				5					10					15	
Val	Gln	Ala	Ser	Lys	Leu	Cys	Leu	Gly	Trp	Leu	Trp	Gly	Met	Asp	Ile
			20					25					30		
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu
		35					40					45			
Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser
	50					55					60				
Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His
65					70					75					80
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Asp	Leu	Met	Thr
				85					90					95	
Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
			100					105					110		
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Lys	Gln
		115					120					125			
Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val
	130					135					140				
Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala
145					150					155					160
Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr
				165					170					175	
Val	Val	Arg	Arg	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro
			180					185					190		
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg
		195					200					205			
Glu	Ser	Gln	Cys												
	210														

<210> 118  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 118

Met	Gln	Leu	Phe	His	Leu	Cys	Leu	Ile	Ile	Ser	Cys	Ser	Cys	Pro	Thr
1				5					10					15	
Val	Gln	Ala	Ser	Lys	Leu	Cys	Leu	Gly	Trp	Leu	Trp	Gly	Met	Asp	Ile
			20					25					30		
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu
		35					40					45			

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Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala  
50 55 60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 119  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 119  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Ser Met Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Tyr Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Thr Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Gln Asp Pro Thr  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Val Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Val Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

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Pro Gln Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 120  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 120  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg His Val Phe Leu Cys Trp Gly Asp  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 121  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 121  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr

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1	5	10	15
Val Gln Ala	Ser Lys Leu Cys Leu	Gly Trp Leu Trp Gly	Met Asp Ile
	20	25	30
Asp Pro Tyr	Lys Glu Phe Gly Ala Thr	Val Glu Leu Leu Ser Phe Leu	
	35	40	45
Pro Ser Asp	Phe Phe Pro Ser Val Arg Asp	Leu Leu Asp Thr Ala Ser	
	50	55	60
Ala Leu Tyr	Arg Glu Ala Leu Glu Ser Pro	Glu His Cys Ser Pro His	
	65	70	75
His Thr Ala	Leu Arg Gln Ala Ile Leu Cys Trp	Gly Asp Leu Thr Thr	
	85	90	95
Leu Ala Thr	Trp Val Gly Val Asn Leu Glu Asp	Pro Ala Ser Arg Asp	
	100	105	110
Leu Val Val	Ser Tyr Val Asn Thr Asn Met Gly	Leu Lys Phe Arg Gln	
	115	120	125
Leu Leu Trp	Phe His Ile Ser Cys Leu Thr Phe	Gly Arg Glu Thr Val	
	130	135	140
Ile Glu Tyr	Leu Val Ser Phe Gly Val Trp Ile	Arg Thr Pro Pro Ala	
	145	150	155
Tyr Arg Pro	Pro Asn Ala Pro Ile Leu Ser Thr	Leu Pro Glu Thr Thr	
	165	170	175
Val Val Arg	Arg Arg Gly Arg Ser Pro Arg Arg Arg	Thr Pro Ser Pro	
	180	185	190
Arg Arg Arg	Arg Ser Gln Ser Pro Arg Arg Arg Arg	Ser Gln Ser Arg	
	195	200	205
Glu Ser Gln Cys			
	210		

<210> 122  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 122
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

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His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Ile Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 123  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 123  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Val  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

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Pro Ser Pro Ala Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 124

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 124

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Asn  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp  
100 105 110

Leu Val Val Gly Tyr Val Asn Thr Thr Val Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 125

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 125

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu

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1	5	10	15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	20	25	30
Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys	35	40	45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp	50	55	60
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala	65	70	75
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys	85	90	95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg	100	105	110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr	115	120	125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro	130	135	140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr	145	150	155
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser	165	170	175
Gln Ser Arg Glu Ser Gln Cys	180		

<210> 126  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 126  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Ala Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
 100 105 110

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Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Ile Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
 195 200 205  
 Glu Ser Gln Cys  
 210

<210> 127  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 127  
 Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
 1 5 10 15  
 Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
 20 25 30  
 Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
 35 40 45  
 Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
 50 55 60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
 65 70 75 80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
 85 90 95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Thr Arg Asp  
 100 105 110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln  
 115 120 125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
 130 135 140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
 145 150 155 160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
 165 170 175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
 180 185 190

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<400> 129  
Met Gln Leu Phe His Leu Cys Leu Val Ile Ser Cys Ser Cys Pro Thr

1	5	10	15
Val Gln Ala	Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile		
	20	25	30
Asp Pro Tyr	Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu		
	35	40	45
Pro Ser Asp	Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala		
	50	55	60
Ala Leu Tyr	Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His		
	65	70	75
His Thr Ala	Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr		
	85	90	95
Leu Ala Thr	Trp Val Gly Asn Asn Leu Glu Asp Pro Ala Ser Arg Asp		
	100	105	110
Leu Val Val	Asn Tyr Val Asn Thr Asn Met Gly Leu Lys Ile Arg Gln		
	115	120	125
Leu Leu Trp	Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val		
	130	135	140
Leu Glu Tyr	Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala		
	145	150	155
Tyr Arg Pro	Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr		
	165	170	175
Val Val Arg	Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro		
	180	185	190
Arg Arg Arg	Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg		
	195	200	205
Glu Ser Gln Cys			
	210		

<210> 130  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 130
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Ala Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80

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His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 131  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 131  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ala Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

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Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 132  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 132  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Gly Ser Gln Cys  
180

<210> 133  
<211> 3221  
<212> DNA  
<213> Hepatitis B virus

<220>  
<221> CDS  
<222> (1901)..(2458)

<400> 133  
ttccactgcc ttccaccaag ctctgcagga cccagagtc aggggtctgt attttctgc 60  
tgggtggctcc agttcaggaa cagtaaacc tgctccgaat attgcctctc acatctcgtc 120

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aatctccgcg aggactgggg accctgtgac gaacatggag aacatcacat caggattcct 180  
aggacccctg ctctgtgttac aggcgggggtt tttattgttg acaagaatcc tcacaataacc 240  
gcagagtcta gactcgtggt ggactttctct caattttata gggggatcac ccgtgtgtct 300  
tggccaaaat tcgcagtccc caacctccaa tcactcacca acctcctgtc ctccaatttg 360  
tcttggttat cgctggatgt gtctcggcg tttatcata ttctcttca tctgtgtgct 420  
atgcctcatc ttcttattgg ttcttctgga ttatcaagg atgttgccc tttgtcctct 480  
aattccagga tcaacaacaa ccagtacggg accatgcaaa acctgcacga ctctgtctca 540  
aggcaactct atgtttccct catgttgctg tacaaaacct acggttgga attgcacctg 600  
tattcccatc ccatcgtcct gggctttcgc aaaataccta tgggagtggt cctcagtccg 660  
tttctcttg ctctgtttac tagtgccatt tggtcagtgg ttcgtagggc tttccccac 720  
tgtttggtt tcagctatat ggatgatgtg gtattggggg ccaagtctgt acagcatcgt 780  
gagtccttt ataccgctgt taccaatttt cttttgtctc tgggtataca tttaaacct 840  
aacaaaacaa aaagatgggg ttattcccta aacttcatgg gttacataat tggagttgg 900  
ggaacattgc cacaggatca tattgtacaa agatcaaac actgttttag aaaacttct 960  
gttaacaggc ctattgattg gaaagtatgt caaagaattg tgggtctttt gggctttgct 1020  
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aaacaggctt tcactttctc gccaaacttac aaggcctttc taagtaaaca gtacatgaac 1140  
ctttaccccg ttgctcgga acgacctggt ctgtgccaag tgtttgctga cgcaaccccc 1200  
actggttggg gcttggccat aggcctcag cgcagtgtg gaacctttgt ggctcctctg 1260  
ccgatccata ctgcggaact cctagccgct tgtattgtc gcagccgggc tggagcaaag 1320  
ctcatcgga ctgacaattc tgcgtcctc tcgcggaaat atacatcgtt tccatggctg 1380  
ctaggctgta ctgccaactg gatccttcgc gggacgtcct ttgtttacgt cccgtcggcg 1440  
ctgaatcccg cggacgacct ctctcggggc cgcttgggac tctatcgtcc ccttctcgt 1500  
ctgccgttcc agccgaccac gggcgacc tctctttacg cggctctccc gtctgtgct 1560  
tctcatctgc cggctcgtgt gcacttcgtc tcacctctgc acgttgcatg gagaccaccg 1620  
tgaacgcca tcagatcctg cccaaggctc tacataagag gactcttga ctcccagcaa 1680  
tgtcaacgac cgacctgag gcctacttca aagactgtgt gtttaaggac tgggaggagc 1740  
tgggggagga gattaggta aaggtctttg tattaggagg ctgtaggcat aaattggtct 1800  
gcgcaccagc accatgcaac tttttacact ctgcctaact atctcttgta catgtcccac 1860  
tgttcaagcc tccaagctgt gccttgggtg gctttggggc atg gac att gac cct 1915  
Met Asp Ile Asp Pro  
1 5  
tat aaa gaa ttt gga gct act gtg gag tta ctc tcg ttt ttg cct tct 1963

Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu	Pro	Ser	
				10					15					20		
gac	ttc	ttt	cct	tcc	gtc	aga	gat	ctc	cta	gac	acc	gcc	tca	gct	ctg	2011
Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser	Ala	Leu	
			25					30					35			
tat	cga	gaa	gcc	tta	gag	tct	cct	gag	cat	tgc	tca	cct	cac	cat	act	2059
Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His	His	Thr	
		40					45					50				
gca	ctc	agg	caa	gcc	att	ctc	tgc	tgg	ggg	gaa	ttg	atg	act	cta	gct	2107
Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr	Leu	Ala	
	55					60					65					
acc	tgg	gtg	ggt	aat	aat	ttg	gaa	gat	cca	gca	tcc	agg	gat	cta	gta	2155
Thr	Trp	Val	Gly	Asn	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp	Leu	Val	
	70				75					80					85	
gtc	aat	tat	gtt	aat	act	aac	atg	ggt	tta	aag	atc	agg	caa	cta	ttg	2203
Val	Asn	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Ile	Arg	Gln	Leu	Leu	
				90					95					100		
tgg	ttt	cat	ata	tct	tgc	ctt	act	ttt	gga	aga	gag	act	gta	ctt	gaa	2251
Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val	Leu	Glu	
			105					110					115			
tat	ttg	gtc	tct	ttc	gga	gtg	tgg	att	cgc	act	cct	cca	gcc	tat	aga	2299
Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala	Tyr	Arg	
		120					125					130				
cca	cca	aat	gcc	cct	atc	tta	tca	aca	ctt	ccg	gaa	act	act	gtt	gtt	2347
Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr	Val	Val	
		135				140					145					
aga	cga	cgg	gac	cga	ggc	agg	tcc	cct	aga	aga	aga	act	ccc	tcg	cct	2395
Arg	Arg	Arg	Asp	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro	
	150				155					160				165		
cgc	aga	cgc	aga	tct	caa	tcg	ccg	cgt	cgc	aga	aga	tct	caa	tct	cgg	2443
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg	
				170					175					180		
gaa	tct	caa	tgt	tag	tattccttgg	actcataagg	tgggaaactt	tactgggctt								2498
Glu	Ser	Gln	Cys													
			185													
tattcctcta	cagtacctat	ctttaatcct	gaatggcaaa	ctccttcctt	tcctaagatt											2558
catttacaag	aggacattat	tgataggtgt	caacaatttg	tgggccctct	cactgtaaat											2618
gaaaagagaa	gattgaaatt	aattatgcct	gctagattct	atcctaccca	cactaaatat											2678
ttgcccttag	acaaaggaat	taaaccttat	tatccagatc	aggtagttaa	tcattacttc											2738
caaaccagac	attatattaca	tactcttttg	aaggctggta	ttctatataa	gagggaaacc											2798
acacgtagcg	catcattttg	cgggtcacca														



ttgggacttc aaccccatca aggaccactg gccagcagcc aaccaggtag gagtgggagc 3038  
 attcggggcca gggctcacc ctcacacgg cggtattttg ggggtggagcc ctcaggctca 3098  
 gggcatattg accacagtgt caacaattcc tcctcctgcc tccaccaatc ggcagtcagg 3158  
 aaggcagcct actcccatct ctccacctct aagagacagt catcctcagg ccatgcagtg 3218  
 gaa 3221

<210> 134  
 <211> 185  
 <212> PRT  
 <213> Hepatitis B virus

<400> 134  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
 65 70 75 80  
 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
 85 90 95  
 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg  
 145 150 155 160  
 Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
 165 170 175  
 Arg Ser Gln Ser Arg Glu Ser Gln Cys  
 180 185

<210> 135  
 <211> 188  
 <212> PRT  
 <213> Woodchuck hepatitis B virus

<400> 135  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu  
 1 5 10 15  
 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp  
 20 25 30  
 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu  
 50 55 60  
 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln

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65		70		75		80
Val Arg Thr Ile	Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys	85	90	95		
Val Arg Gln Ser	Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln	100	105	110		
His Thr Val Gln	Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr	115	120	125		
Pro Ala Pro Tyr	Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro	130	135	140		
Glu His Thr Val	Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser	145	150	155	160	
Pro Arg Arg Arg	Thr Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro	165	170	175		
Arg Arg Arg Arg	Ser Gln Ser Pro Ser Thr Asn Cys	180	185			

<210> 136  
 <211> 217  
 <212> PRT  
 <213> Ground squirrel hepatitis virus

<400> 136
Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro
1 5 10 15
Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp
20 25 30
Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe
35 40 45
Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala
50 55 60
Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro
65 70 75 80
His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr
85 90 95
Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg
100 105 110
Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln
115 120 125
Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val
130 135 140
Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr
165 170 175

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Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg  
180 185 190

Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
195 200 205

Arg Ser Gln Ser Pro Ala Ser Asn Cys  
210 215

<210> 137

<211> 262

<212> PRT

<213> Snow Goose Hepatitis B Virus

<400> 137

Met Asp Val Asn Ala Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro  
1 5 10 15

Asp Asp Phe Phe Pro Lys Ile Glu Asp Leu Val Arg Asp Ala Lys Asp  
20 25 30

Ala Leu Glu Pro Tyr Trp Lys Ser Asp Ser Ile Lys Lys His Val Leu  
35 40 45

Ile Ala Thr His Phe Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr  
50 55 60

Gln Gly Met His Glu Ile Ala Glu Ala Ile Arg Ala Val Ile Pro Pro  
65 70 75 80

Thr Thr Ala Pro Val Pro Ser Gly Tyr Leu Ile Gln His Asp Glu Ala  
85 90 95

Glu Glu Ile Pro Leu Gly Asp Leu Phe Lys Glu Gln Glu Glu Arg Ile  
100 105 110

Val Ser Phe Gln Pro Asp Tyr Pro Ile Thr Ala Arg Ile His Ala His  
115 120 125

Leu Lys Ala Tyr Ala Lys Ile Asn Glu Glu Ser Leu Asp Arg Ala Arg  
130 135 140

Arg Leu Leu Trp Trp His Tyr Asn Cys Leu Leu Trp Gly Glu Ala Thr  
145 150 155 160

Val Thr Asn Tyr Ile Ser Arg Leu Arg Thr Trp Leu Ser Thr Pro Glu  
165 170 175

Lys Tyr Arg Gly Arg Asp Ala Pro Thr Ile Glu Ala Ile Thr Arg Pro  
180 185 190

Ile Gln Val Ala Gln Gly Gly Arg Lys Thr Ser Thr Ala Thr Arg Lys  
195 200 205

Pro Arg Gly Leu Glu Pro Arg Arg Arg Lys Val Lys Thr Thr Val Val  
210 215 220

Tyr Gly Arg Arg Arg Ser Lys Ser Arg Glu Arg Arg Ala Ser Ser Pro  
225 230 235 240

Gln Arg Ala Gly Ser Pro Leu Pro Arg Ser Ser Ser Ser His His Arg  
245 250 255

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Ser Pro Ser Pro Arg Lys  
260

<210> 138  
<211> 305  
<212> PRT  
<213> Duck hepatitis B virus

<400> 138  
Met Trp Asp Leu Arg Leu His Pro Ser Pro Phe Gly Ala Ala Cys Gln  
1 5 10 15  
Gly Ile Phe Thr Ser Ser Leu Leu Leu Phe Leu Val Thr Val Pro Leu  
20 25 30  
Val Cys Thr Ile Val Tyr Asp Ser Cys Leu Cys Met Asp Ile Asn Ala  
35 40 45  
Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro Asp Asp Phe Phe Pro  
50 55 60  
Lys Ile Asp Asp Leu Val Arg Asp Ala Lys Asp Ala Leu Glu Pro Tyr  
65 70 75 80  
Trp Arg Asn Asp Ser Ile Lys Lys His Val Leu Ile Ala Thr His Phe  
85 90 95  
Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr Gln Gly Met His Glu  
100 105 110  
Ile Ala Glu Ala Leu Arg Ala Ile Ile Pro Ala Thr Thr Ala Pro Val  
115 120 125  
Pro Gln Gly Phe Leu Val Gln His Glu Glu Ala Glu Glu Ile Pro Leu  
130 135 140  
Gly Glu Leu Phe Arg Tyr Gln Glu Glu Arg Leu Thr Asn Phe Gln Pro  
145 150 155 160  
Asp Tyr Pro Val Thr Ala Arg Ile His Ala His Leu Lys Ala Tyr Ala  
165 170 175  
Lys Ile Asn Glu Glu Ser Leu Asp Arg Ala Arg Arg Leu Leu Trp Trp  
180 185 190  
His Tyr Asn Cys Leu Leu Trp Gly Glu Pro Asn Val Thr Asn Tyr Ile  
195 200 205  
Ser Arg Leu Arg Thr Trp Leu Ser Thr Pro Glu Lys Tyr Arg Gly Lys  
210 215 220  
Asp Ala Pro Thr Ile Glu Ala Ile Thr Arg Pro Ile Gln Val Ala Gln  
225 230 235 240  
Gly Gly Arg Asn Lys Thr Gln Gly Val Arg Lys Ser Arg Gly Leu Glu  
245 250 255  
Pro Arg Arg Arg Arg Val Lys Thr Thr Ile Val Tyr Gly Arg Arg Arg  
260 265 270  
Ser Lys Ser Arg Glu Arg Arg Ala Pro Thr Pro Gln Arg Ala Gly Ser  
275 280 285

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Pro Leu Pro Arg Thr Ser Arg Asp His His Arg Ser Pro Ser Pro Arg  
290 295 300

Glu  
305

<210> 139  
<211> 212  
<212> PRT  
<213> Haemophilus influenzae

<400> 139  
Met Lys Lys Thr Leu Leu Gly Ser Leu Ile Leu Leu Ala Phe Ala Gly  
1 5 10 15  
Asn Val Gln Ala Ala Asn Ala Asp Thr Ser Gly Thr Val Thr Phe  
20 25 30  
Phe Gly Lys Val Val Glu Asn Thr Cys Gln Val Asn Gln Asp Ser Glu  
35 40 45  
Tyr Glu Cys Asn Leu Asn Asp Val Gly Lys Asn His Leu Ser Gln Gln  
50 55 60  
Gly Tyr Thr Ala Met Gln Thr Pro Phe Thr Ile Thr Leu Glu Asn Cys  
65 70 75 80  
Asn Val Thr Thr Thr Asn Asn Lys Pro Lys Ala Thr Lys Val Gly Val  
85 90 95  
Tyr Phe Tyr Ser Trp Glu Ile Ala Asp Lys Asp Asn Lys Tyr Thr Leu  
100 105 110  
Lys Asn Ile Lys Glu Asn Thr Gly Thr Asn Asp Ser Ala Asn Lys Val  
115 120 125  
Asn Ile Gln Leu Leu Glu Asp Asn Gly Thr Ala Glu Ile Lys Val Val  
130 135 140  
Gly Lys Thr Thr Thr Asp Phe Thr Ser Glu Asn His Asn Gly Ala Gly  
145 150 155 160  
Ala Asp Pro Val Ala Thr Asn Lys His Ile Ser Ser Leu Thr Pro Leu  
165 170 175  
Asn Asn Gln Asn Ser Ile Asn Leu His Tyr Ile Ala Gln Tyr Tyr Ala  
180 185 190  
Thr Gly Val Ala Glu Ala Gly Lys Val Pro Ser Ser Val Asn Ser Gln  
195 200 205  
Ile Ala Tyr Glu  
210

<210> 140  
<211> 139  
<212> PRT  
<213> Pseudomonas stutzeri

<400> 140  
Met Lys Ala Gln Met Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile

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1 5 10 15  
Val Val Ala Ile Ile Gly Ile Leu Ala Ala Ile Ala Leu Pro Ala Tyr  
20 25 30  
Gln Asp Tyr Thr Val Arg Ser Asn Ala Ala Ala Ala Leu Ala Glu Ile  
35 40 45  
Thr Pro Gly Lys Ile Gly Phe Glu Gln Ala Ile Asn Glu Gly Lys Thr  
50 55 60  
Pro Ser Leu Thr Ser Thr Asp Glu Gly Tyr Ile Gly Ile Thr Asp Ser  
65 70 75 80  
Thr Ser Tyr Cys Asp Val Asp Leu Asp Thr Ala Ala Asp Gly His Ile  
85 90 95  
Glu Cys Thr Ala Lys Gly Gly Asn Ala Gly Lys Phe Asp Gly Lys Thr  
100 105 110  
Ile Thr Leu Asn Arg Thr Ala Asp Gly Glu Trp Ser Cys Ala Ser Thr  
115 120 125  
Leu Asp Ala Lys Tyr Lys Pro Gly Lys Cys Ser  
130 135

<210> 141  
<211> 59  
<212> PRT  
<213> *Caulobacter crescentus*

<400> 141  
Met Thr Lys Phe Val Thr Arg Phe Leu Lys Asp Glu Ser Gly Ala Thr  
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Ala Ile Glu Tyr Gly Leu Ile Val Ala Leu Ile Ala Val Val Ile Val  
20 25 30  
Thr Ala Val Thr Thr Leu Gly Thr Asn Leu Arg Thr Ala Phe Thr Lys  
35 40 45  
Ala Gly Ala Ala Val Ser Thr Ala Ala Gly Thr  
50 55

<210> 142  
<211> 173  
<212> PRT  
<213> *Escherichia coli*

<400> 142  
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln  
1 5 10 15  
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
20 25 30  
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
35 40 45  
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu  
50 55 60

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Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn  
65 70 75 80  
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val  
85 90 95  
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala  
100 105 110  
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu  
115 120 125  
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr  
130 135 140  
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly  
145 150 155 160  
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln  
165 170

<210> 143  
<211> 173  
<212> PRT  
<213> Escherichia coli

<400> 143  
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln  
1 5 10 15  
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
20 25 30  
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
35 40 45  
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu  
50 55 60  
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn  
65 70 75 80  
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val  
85 90 95  
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala  
100 105 110  
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu  
115 120 125  
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr  
130 135 140  
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly  
145 150 155 160  
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln  
165 170

<210> 144  
<211> 172

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T07050" 9T984860

<212> PRT

<213> Escherichia coli

<400> 144

Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Thr Pro Gln  
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 Gly Gln Gly Arg Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
 20 25 30  
 Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
 35 40 45  
 Ser Lys Ser Phe Leu Ala Asn Asp Gly Gln Ser Lys Pro Met Asn Leu  
 50 55 60  
 Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Asn Gly Asn  
 65 70 75 80  
 Ala Lys Thr Gly Ser Val Lys Leu Ala Phe Thr Gly Pro Thr Val Ser  
 85 90 95  
 Gly His Pro Ser Glu Leu Ala Thr Asn Gly Gly Pro Gly Thr Ala Ile  
 100 105 110  
 Met Ile Gln Ala Ala Gly Lys Asn Val Pro Phe Asp Gly Thr Glu Gly  
 115 120 125  
 Asp Pro Asn Leu Leu Lys Asp Gly Asp Asn Val Leu His Tyr Thr Thr  
 130 135 140  
 Val Gly Lys Lys Ser Ser Asp Gly Asn Ala Gln Ile Thr Glu Gly Ala  
 145 150 155 160  
 Phe Ser Gly Val Ala Thr Phe Asn Leu Ser Tyr Gln  
 165 170

<210> 145

<211> 853

<212> DNA

<213> Escherichia coli

<220>

<221> CDS

<222> (281)..(829)

<400> 145

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 gtttgccgc gatgctttac ctctatgagt caaaatggcc ccaatgtttc atcttttggg 180  
 ggaaactgtg cagtgttggc agtcaaactc gttgacaaac aaagtgtaca gaacgactgc 240  
 ccatgtcgat ttagaaatag ttttttgaaa ggaaagcagc atg aaa att aaa act 295  
 Met Lys Ile Lys Thr  
 1 5  
 ctg gca atc gtt gtt ctg tcg gct ctg tcc ctc agt tct acg acg gct 343  
 Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu Ser Ser Thr Thr Ala  
 10 15 20

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ctg gcc gct gcc acg acg gtt aat ggt ggg acc gtt cac ttt aaa ggg	391
Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr Val His Phe Lys Gly	
25 30 35	
gaa gtt gtt aac gcc gct tgc gca gtt gat gca ggc tct gtt gat caa	439
Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala Gly Ser Val Asp Gln	
40 45 50	
acc gtt cag tta gga cag gtt cgt acc gca tgc ctg gca cag gaa gga	487
Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser Leu Ala Gln Glu Gly	
55 60 65	
gca acc agt tct gct gtc ggt ttt aac att cag ctg aat gat tgc gat	535
Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln Leu Asn Asp Cys Asp	
70 75 80 85	
acc aat gtt gca tct aaa gcc gct gtt gcc ttt tta ggt acg gcg att	583
Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe Leu Gly Thr Ala Ile	
90 95 100	
gat gcg ggt cat acc aac gtt ctg gct ctg cag agt tca gct gcg ggt	631
Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln Ser Ser Ala Ala Gly	
105 110 115	
agc gca aca aac gtt ggt gtg cag atc ctg gac aga acg ggt gct gcg	679
Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp Arg Thr Gly Ala Ala	
120 125 130	
ctg acg ctg gat ggt gcg aca ttt agt tca gaa aca acc ctg aat aac	727
Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu Thr Thr Leu Asn Asn	
135 140 145	
gga acc aat acc att ccg ttc cag gcg cgt tat ttt gca acc ggg gcc	775
Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr Phe Ala Thr Gly Ala	
150 155 160 165	
gca acc ccg ggt gct gct aat gcg gat gcg acc ttc aag gtt cag tat	823
Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe Lys Val Gln Tyr	
170 175 180	
caa taa cctacctagg ttcagggacg ttca	853
Gln	

<210> 146  
 <211> 182  
 <212> PRT  
 <213> Escherichia coli

<400> 146  
 Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
 1 5 10 15  
 Ser Ser Thr Thr Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
 20 25 30  
 Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
 35 40 45  
 Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
 50 55 60  
 Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
 65 70 75 80  
 Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
 85 90 95  
 Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln

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<210> 147
<211> 11
<212> PRT
<213> Artificial Sequence
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<400> 147  
Cys Gly Gly Asp Tyr Lys Asp Asp Asp Asp Lys  
1 5 10

<220>  
<223> primer

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<210> 149
<211> 37
<212> DNA
<213> Artificial Sequence
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<400> 149  
gtgcagtatg gtgagggtgag gaatgctcag gagactc 37

<220>  
<223> primer

<400> 150  
 gsgtctcctg agcattcctc acctcaccat actgcac 37

<210> 151  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 151  
 cttccaaaag tgagggaaga aatgtgaaac cac 33

<210> 152  
 <211> 47  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 152  
 cgcggtcccaa gcttctaaac aacagtagtc tccggaagcg ttgatag 47

<210> 153  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 153  
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<210> 154  
 <211> 281  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 154  
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 Thr Ser Thr Ala Lys Pro Met Val Gly Gln Leu Ile Phe Asp Lys Phe  
 35 40 45  
 Ile Lys Thr Glu Glu Asp Pro Ile Ile Lys Gln Asp Thr Pro Ser Asn  
 50 55 60  
 Leu Asp Phe Asp Phe Ala Leu Pro Gln Thr Ala Thr Ala Pro Asp Ala  
 65 70 75 80  
 Lys Thr Val Leu Pro Ile Pro Glu Leu Asp Asp Ala Val Val Glu Ser  
 85 90 95  
 Phe Phe Ser Ser Ser Thr Asp Ser Thr Pro Met Phe Glu Tyr Glu Asn  
 100 105 110

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Leu Glu Asp Asn Ser Lys Glu Trp Thr Ser Leu Phe Asp Asn Asp Ile  
115 120 125

Pro Val Thr Thr Asp Asp Val Ser Leu Ala Asp Lys Ala Ile Glu Ser  
130 135 140

Thr Glu Glu Val Ser Leu Val Pro Ser Asn Leu Glu Val Ser Thr Thr  
145 150 155 160

Ser Phe Leu Pro Thr Pro Val Leu Glu Asp Ala Lys Leu Thr Gln Thr  
165 170 175

Arg Lys Val Lys Lys Pro Asn Ser Val Val Lys Lys Ser His His Val  
180 185 190

Gly Lys Asp Asp Glu Ser Arg Leu Asp His Leu Gly Val Val Ala Tyr  
195 200 205

Asn Arg Lys Gln Arg Ser Ile Pro Leu Ser Pro Ile Val Pro Glu Ser  
210 215 220

Ser Asp Pro Ala Ala Leu Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg  
225 230 235 240

Arg Ser Arg Ala Arg Lys Leu Gln Arg Met Lys Gln Leu Glu Asp Lys  
245 250 255

Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala  
260 265 270

Arg Leu Lys Lys Leu Val Gly Glu Arg  
275 280

<210> 155  
<211> 181  
<212> PRT  
<213> Escherichia coli

<400> 155  
Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
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Ser Ser Thr Ala Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
20 25 30

Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
35 40 45

Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
50 55 60

Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
65 70 75 80

Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
85 90 95

Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln  
100 105 110

Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp  
115 120 125

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Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
130 135 140

Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
145 150 155 160

Phe Ala Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe  
165 170 175

Lys Val Gln Tyr Gln  
180

<210> 156  
<211> 447  
<212> DNA  
<213> Hepatitis B

<220>  
<221> CDS  
<222> (1)..(447)

<400> 156  
atg gac att gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

tcg ttt ttg cct tct gac ttc ttt cct tcc gta cga gat ctt cta gat 96  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

acc gcc gca gct ctg tat cgg gat gcc tta gag tct cct gag cat tgt 144  
Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg gga gac 192  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

tta atg act cta gct acc tgg gtg ggt act aat tta gaa gat cca gca 240  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
65 70 75 80

tct agg gac cta gta gtc agt tat gtc aac act aat gtg ggc cta aag 288  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
85 90 95

ttc aga caa tta ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

gaa acg gtt cta gag tat ttg gtc tct ttt gga gtg tgg att cgc act 384  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

cct cca gcc tat aga cca cca aat gcc cct atc cta tca acg ctt ccg 432  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

gag act act gtt gtt 447  
Glu Thr Thr Val Val  
145

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<210> 157  
 <211> 149  
 <212> PRT  
 <213> Hepatitis B

<400> 157  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
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 20 25 30  
 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
 65 70 75 80  
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
 85 90 95  
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 Glu Thr Thr Val Val  
 145

<210> 158  
 <211> 152  
 <212> PRT  
 <213> Hepatitis B

<400> 158  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
 50 55 60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
 65 70 75 80  
 Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val  
 85 90 95  
 Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr

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	100		105		110
Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp					
	115		120		125
Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser					
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Thr Leu Pro Glu Thr Thr Val Val					
	145		150		

<210> 159  
 <211> 56  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 159  
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<210> 160  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 160  
 gtcaaaggcc ttgtcgacgt tattccatta cgcccgatcat ttggg 45

<210> 161  
 <211> 4623  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> pFIMAIC

<400> 161  
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 ttctaaatac attcaaatat gtatccgctc atgagacaat aaccctgata aatgcttcaa 180  
 taatattgaa aaaggaagag tatgagtatt caacatttcc gtgtcgccct tattcccttt 240  
 tttgcggcat tttgccttcc tgtttttgct caccagaaa cgctgggtgaa agtaaaagat 300  
 gctgaagatc agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtaag 360

0904050 " 050407

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cactattctc agaatgactt ggttgagtac tcaccagtca cagaaaagca tcttacggat	540
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aacttacttc tgacaacgat cggaggaccg aaggagctaa ccgctttttt gcacaacatg	660
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ccggctcgta tgttgtgtg aattgtgagc ggataacaat ttcacacagg aaacagctat	2220
gacatgatt acgccaagct tataatagaa atagtttttt gaaaggaaag cagcatgaaa	2280

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 tgggtgcactc tcagtacaat ctgctctgat gccgcatagt taagccagcc ccgacacccg 4500  
 ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc cgccatccgc ttacagacaa 4560  
 gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt caccgtcatc accgaaacgc 4620  
 gcg 4623

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<210> 170  
 <211> 27  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic M2 Peptide

<400> 170  
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys  
 1 5 10 15  
 Arg Cys Asn Gly Ser Ser Asp Gly Gly Gly Cys  
 20 25

<210> 171

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<211> 97  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Matrix protein M2

<400> 171  
 Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly  
 1 5 10 15  
 Cys Arg Cys Asn Gly Ser Ser Asp Pro Leu Ala Ile Ala Ala Asn Ile  
 20 25 30  
 Ile Gly Ile Leu His Leu Ile Leu Trp Ile Leu Asp Arg Leu Phe Phe  
 35 40 45  
 Lys Cys Ile Tyr Arg Arg Phe Lys Tyr Gly Leu Lys Gly Gly Pro Ser  
 50 55 60  
 Thr Glu Gly Val Pro Lys Ser Met Arg Glu Glu Tyr Arg Lys Glu Gln  
 65 70 75 80  
 Gln Ser Ala Val Asp Ala Asp Asp Gly His Phe Val Ser Ile Glu Leu  
 85 90 95  
 Glu

<210> 172  
 <211> 770  
 <212> PRT  
 <213> Homo Sapiens

<400> 172  
 Met Leu Pro Gly Leu Ala Leu Leu Leu Leu Ala Ala Trp Thr Ala Arg  
 1 5 10 15  
 Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro  
 20 25 30  
 Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln  
 35 40 45  
 Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp  
 50 55 60  
 Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu  
 65 70 75 80  
 Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn  
 85 90 95  
 Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val  
 100 105 110

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Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu  
115 120 125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys  
130 135 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu  
145 150 155 160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile  
165 170 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu  
180 185 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val  
195 200 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys  
210 215 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu Glu  
225 230 235 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu  
245 250 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile  
260 265 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg  
275 280 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile  
290 295 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe  
305 310 315 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr  
325 330 335

Cys Met Ala Val Cys Gly Ser Ala Met Ser Gln Ser Leu Leu Lys Thr  
340 345 350

Thr Gln Glu Pro Leu Ala Arg Asp Pro Val Lys Leu Pro Thr Thr Ala  
355 360 365

Ala Ser Thr Pro Asp Ala Val Asp Lys Tyr Leu Glu Thr Pro Gly Asp  
370 375 380

Glu Asn Glu His Ala His Phe Gln Lys Ala Lys Glu Arg Leu Glu Ala  
385 390 395 400

Lys His Arg Glu Arg Met Ser Gln Val Met Arg Glu Trp Glu Glu Ala  
405 410 415

Glu Arg Gln Ala Lys Asn Leu Pro Lys Ala Asp Lys Lys Ala Val Ile  
420 425 430

Gln His Phe Gln Glu Lys Val Glu Ser Leu Glu Gln Glu Ala Ala Asn  
435 440 445

09848616 050401

Glu Arg Gln Gln Leu Val Glu Thr His Met Ala Arg Val Glu Ala Met	450	455	460
Leu Asn Asp Arg Arg Arg Leu Ala Leu Glu Asn Tyr Ile Thr Ala Leu	465	470	475 480
Gln Ala Val Pro Pro Arg Pro Arg His Val Phe Asn Met Leu Lys Lys	485	490	495
Tyr Val Arg Ala Glu Gln Lys Asp Arg Gln His Thr Leu Lys His Phe	500	505	510
Glu His Val Arg Met Val Asp Pro Lys Lys Ala Ala Gln Ile Arg Ser	515	520	525
Gln Val Met Thr His Leu Arg Val Ile Tyr Glu Arg Met Asn Gln Ser	530	535	540
Leu Ser Leu Leu Tyr Asn Val Pro Ala Val Ala Glu Glu Ile Gln Asp	545	550	555 560
Glu Val Asp Glu Leu Leu Gln Lys Glu Gln Asn Tyr Ser Asp Asp Val	565	570	575
Leu Ala Asn Met Ile Ser Glu Pro Arg Ile Ser Tyr Gly Asn Asp Ala	580	585	590
Leu Met Pro Ser Leu Thr Glu Thr Lys Thr Thr Val Glu Leu Leu Pro	595	600	605
Val Asn Gly Glu Phe Ser Leu Asp Asp Leu Gln Pro Trp His Ser Phe	610	615	620
Gly Ala Asp Ser Val Pro Ala Asn Thr Glu Asn Glu Val Glu Pro Val	625	630	635 640
Asp Ala Arg Pro Ala Ala Asp Arg Gly Leu Thr Thr Arg Pro Gly Ser	645	650	655
Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys Met Asp	660	665	670
Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu	675	680	685
Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly	690	695	700
Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu	705	710	715 720
Val Met Leu Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val	725	730	735
Glu Val Asp Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met	740	745	750
Gln Gln Asn Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met	755	760	765
Gln Asn	770		

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<210> 173

<211> 82

<212> PRT

<213> Homo Sapiens

<400> 173

Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys  
1 5 10 15  
Met Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln  
20 25 30  
Lys Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile  
35 40 45  
Ile Gly Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Ile Ile  
50 55 60  
Thr Leu Val Met Leu Lys Lys Gln Tyr Thr Ser Asn His His Gly Val  
65 70 75 80  
Val Glu

<210> 174

<211> 42

<212> PRT

<213> Unknown

<220>

<223> Amyloid Beta Peptide

<400> 174

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15  
Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile  
20 25 30  
Gly Leu Met Val Gly Gly Val Val Ile Ala  
35 40

<210> 175

<211> 12

<212> PRT

<213> Artificial Sequence

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<220>

<223> p33 peptide

<400> 175

Cys Gly Gly Lys Ala Val Tyr Asn Phe Ala Thr Met  
1 5 10

<210> 176

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> DP178c peptide

<400> 176

Cys Tyr Thr Ser Leu Ile His Ser Leu Ile Glu Glu Ser Gln Asn Gln  
1 5 10 15

Gln Glu Lys Asn Glu Gln Glu Leu Leu Glu Leu Asp Lys Trp Ala Ser  
20 25 30

Leu Trp Asn Trp Phe  
35

<210> 177

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> c-terminal linker

<400> 177

Gly Ser Gly Gly Cys Gly  
1 5

<210> 178

<211> 65

0904050" 91984850

<212> PRT

<213> Artificial Sequence

<220>

<223> GRA2

<400> 178

Lys Glu Ala Ala Gly Arg Gly Met Val Thr Val Gly Lys Lys Leu Ala  
1 5 10 15

Asn Val Glu Ser Asp Arg Ser Thr Thr Thr Thr Gln Ala Pro Asp Ser  
20 25 30

Pro Asn Gly Leu Ala Glu Thr Glu Val Pro Val Glu Pro Gln Gln Arg  
35 40 45

Ala Ala His Val Pro Val Pro Asp Phe Ser Gln Gly Ser Gly Gly Cys  
50 55 60

Gly  
65

<210> 179

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> D2 peptide

<400> 179

Cys Gly Gly Thr Ser Asn Gly Ser Asn Pro Ser Thr Ser Tyr Gly Phe  
1 5 10 15

Ala Asn

<210> 180

<211> 18

<212> PRT

<213> Artificial Sequence

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<220>

<223> B2 peptide

<400> 180

Cys Gly Gly Asp Ile Ser Asn Gly Tyr Gly Ala Ser Tyr Gly Asp Asn  
1 5 10 15

Asp Ile

<210> 181

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> muTNFa peptide

<400> 181

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg  
1 5 10

<210> 182

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> TNFa II (3'-TNFa II)

<400> 182

Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

His Gly Val Gly Gly Cys  
20

<210> 183

<211> 20

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<212> PRT

<213> Artificial Sequence

<220>

<223> TNFa II (5' TNFa II)

<400> 183

Cys Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala  
1 5 10 15  
Asn His Gly Val  
20

<210> 184

<211> 182

<212> PRT

<213> Escherichia coli

<400> 184

Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
1 5 10 15  
Ser Ser Thr Ala Ala Leu Ala Ala Thr Thr Val Asn Gly Gly Thr  
20 25 30  
Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
35 40 45  
Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
50 55 60  
Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
65 70 75 80  
Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
85 90 95  
Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln  
100 105 110  
Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp  
115 120 125  
Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
130 135 140  
Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
145 150 155 160

0948610604050" 97934860

Phe Ala Thr Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr  
165 170 175

Phe Lys Val Gln Tyr Gln  
180

<210> 185

<211> 152

<212> PRT

<213> Hepatitis B virus

<400> 185

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Ile Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
65 70 75 80

Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met  
85 90 95

Gly Leu Lys Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr  
100 105 110

Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp  
115 120 125

Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser  
130 135 140

Thr Leu Pro Glu Thr Thr Val Val  
145 150

<210> 186

<211> 152

<212> PRT

<213> Hepatitis B virus

<400> 186

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

00045616 050404

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Ser  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
65 70 75 80  
Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met  
85 90 95  
Gly Leu Lys Ile Arg Gln Leu Leu Trp Phe His Ile Ser Ser Leu Thr  
100 105 110  
Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp  
115 120 125  
Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser  
130 135 140  
Thr Leu Pro Glu Thr Thr Val Val  
145 150

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